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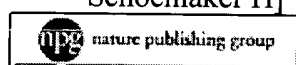
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☐ 1: Oncogene 1998 Dec 17;17(24):3125-35

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Erratum in:

- Oncogene 1999 Apr 8;18(14):2411. Shoemaker H[corrected to Schoemaker H]



Molecular and immunological analysis of genetic prostate specific antigen (PSA) vaccine.

Kim JJ, Trivedi NN, Wilson DM, Mahalingam S, Morrison L, Tsai A, Chattergoon MA, Dang K, Patel M, Ahn L, Boyer JD, Chalian AA, Schoemaker H, Kieber-Emmons T, Agadjanyan MA, Weiner DB, Shoemaker H.

Department of Chemical Engineering, University of Pennsylvania, Philadelphia 19104, USA.

Nucleic acid immunization has been investigated as immunotherapy for infectious diseases as well as for treating specific types of cancers. In this approach, nucleic acid expression cassettes are directly inoculated into the host, whose transfected cells become the production source of novel and possibly immunologically foreign protein. We have developed a DNA vaccine construct which encodes for PSA by cloning a cDNA for PSA into a mammalian expression vector under control of a CMV promoter. We investigated and characterized the immunogenicity of PSA DNA expression cassettes in mice. PSA-specific immune responses induced in vivo by immunization were characterized by enzyme-linked immunosorbent assay (ELISA), T helper proliferation cytotoxic T lymphocyte (CTL), and flow cytometry assays. We observed a strong and persistent antibody response against PSA for at least 180 days following immunization. In addition, a significant T helper cell proliferation was observed against PSA protein. Using synthetic peptides spanning the PSA open frame, we identified four dominant T helper epitopes of PSA. Furthermore, immunization with PSA plasmid induced MHC Class I CD8+ T cell-restricted cytotoxic T lymphocyte response against tumor cell targets expressing PSA. The prostate represents a very specific functional organ critical for reproduction but not for the health and survival of the individual. Understanding the immunogenicity of PSA DNA immunization cassettes offers insight into the possible use of this tumor-associated antigen as a target for immunotherapy.

These results demonstrate the ability of the genetic PSA to serve as a specific immune target capable of generating both humoral and cellular immune responses in vivo.

PMID: 9872328 [PubMed - indexed for MEDLINE]

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